JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

State of Utah

Department of Natural Resources

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas & Mining

MARY ANN WRIGHT
Acting Division Director

January 25, 2005

CERTIFIED RETURN RECEIPT
7099 3400 0016 8896 1584

Alex Boulton
Brush Resources, Incorporated
P.O. Box 815
Delta, Utah 84624

Subject: Initial Review of Notice of Intention to Amend Large Mining Operations, Brush Resources, Inc., Topaz Mine, M/023/003, Juab County, Utah

Dear Mr. Boulton:

The Division has completed our review of your draft Notice of Intention to Revise Large Mining Operations for the Topaz mine, located in Juab County, Utah, which was received December 15, 2004. After reviewing the information, the Division has determined that the notice meets the qualifications to be considered an amendment, rather than a revision. The attached comments will need to be addressed before approval may be granted.

The comments are listed under the applicable Minerals Rule heading. Please format your response in a similar fashion. **Please address only those items requested in the attached technical review.** Please send replacement pages of the original mining notice using redline and strikeout text, so we can see what changes have been made. After the notice is determined technically complete and we are prepared to issue final approval, we will ask that you send us two clean copies of the complete and corrected plan. Upon final approval of the permit, we will return one copy stamped "approved" for your records. Please provide a response to this review by March 1, 2005.

The Division will suspend further review of the Topaz Mine amendment until your response to this letter is received. If you have any questions in this regard please contact me, Tom Munson, Paul Baker or Doug Jensen of the

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Minerals Staff. If you wish to arrange a meeting to sit down and discuss this review, please contact us at your earliest convenience. Thank you for your cooperation in completing this permitting action.

Sincerely,

Daron R. Haddock
Permit Supervisor
Minerals Regulatory Program

DRH:tm:jb
Attachment: Review
cc: John Blake, SITLA (ML-18237)
O:\M023-Juab\M0230003-Topaz-brush\final\initial-rev-amend-1242005.doc

INITIAL REVIEW OF NOTICE OF INTENTION TO AMEND LARGE MINING OPERATIONS

Brush Resources, Incorporated
Topaz Mine

M/023/003
January 25, 2005

R647-4-101 - Filing Requirements and Review Procedures

Section 6.9 discusses archaeological and paleontological resources. The Mined Land Reclamation Act does not contain requirements for protecting cultural resources, but a cultural resources clearance is required by other laws for any State-permitted action that might affect these resources. This is required no matter what the land ownership may be. The statements in this section indicating that cultural resources inventories and clearances are not required need to be modified accordingly. (PBB)

The application discusses one particular site, 42JB721, and says that since the site is on private land, it is no longer eligible for listing in the National Register of Historic Places (NRHP). If private land contains a site eligible for listing in the NRHP, the land owner may refuse to have the site listed, but this does not change the site's eligibility. The application should be changed to reflect this information. (PBB)

The Division will need to confer with the Division of State History to determine what cultural resources inventories have been completed and what additional work might be needed to gather baseline information. If significant resources are found in areas proposed to be mined, a mitigation or avoidance plan will need to be developed. (PBB)

R647-4-105 - Maps, Drawings & Photographs

105.1 Topographic base map, boundaries, pre-act disturbance

Contour intervals are shown on proposed dumps and pits; there are no elevations marked on the contours. Please include elevations on these features for evaluation purposes. (DJ)

Topsoil is to be harvested during the implementation of this plan. None of the maps show the location of these stockpiles. Please show the location of these stockpile areas and include the reclamation of these areas in the surety. Also please include these impacted areas in the total disturbance for this application. (DJ)

Diversion ditches are planned for areas with higher runoff.
No diversion ditches or impoundments are shown on any of the maps included in this application. The original application had runoff calculations, diversion ditch locations, and runoff calculations Please show the location of these features similar to the first application and include the cost of construction in the surety estimate. (DJ)

R647-4-106 - Operation Plan

106.5 Existing soil types, location, amount

The plan includes the most basic information about soils, and it also says the operator will work with the Division to develop ways to observe and measure physical and

chemical soil parameters to delineate precisely which soils will be salvaged and to what depth. The most basic parameter for judging soils in this area is electrical conductivity (EC), and it is a relatively simple test that can be done in the field. Soil texture can be estimated in the field by a trained person, and this is also a very useful parameter. (PBB)

There will only be about three to six inches of topsoil applied in those areas where it is placed, and since most plants have rooting depths that extend to lower levels than this, the nature of the material below the topsoil is important for plant establishment and survival. What is known about the suitability of this material as a plant growth medium? If overburden materials are detrimental, are there ways of handling this material so it is kept out of the rooting zone? (PBB)

106.6 Plan for protecting & redepositing soils

On page 6 of the Executive Summary, the plan says existing stockpiled topsoil will be used first to the extent possible. As much as feasible, soil should be live hauled, in other words stripped, transported, and placed without being stockpiled. By doing this, some of the soil seed bank and even a few plants are kept alive to recolonize the reclaimed area. (PBB)

Plate 7D shows topsoil being salvaged from only part of the Rainbow LMU Pits, and the Division understands soil has already been stripped from the rest of this area. Maps showing the other LMUs do not show soil being salvaged from these areas. Has soil already been stripped from these areas as well? Or is there no need to put this information on the maps because commitments to salvage soil are already in the plan? (PBB)

R647-4-107 - Operation Practices

107.5 Suitable soils removed & stored

The plan states that topsoil will be stockpiled either within adjacent areas previously disturbed areas that have been released or within Phase 1 disturbance limits.
A commitment to rip and reseed these impacted areas should be included in the plan. (DJ)

R647-4-109 - Impact Assessment

109.1 Impacts to surface & groundwater systems

The operator needs to include a discussion of what interim plans are being carried to prevent excessive drainage problems during interim construction phases where complete drainage systems have not been developed. (TM)

109.3 Impacts on existing soils resources

Nowhere in the text of the plan does BRI commit to salvage soils beneath areas which will be covered by waste dumps.
A commitment should be included in the plan to salvage all growth medium which will be covered by the waste dumps. (DJ)

R647-4-110 - Reclamation Plan

110.2 Roads, highwalls, slopes, drainages, pits, etc., reclaimed

The application shows some county roads that would be closed, and it appears most or all of these would be replaced with new roads. Unless the county is retaining ownership of these closed roads and desires that they be left for a postmining land use, the closed roads need to be reclaimed. In making this requirement, it is not the Division's intent to have the operator reclaim or eliminate county roads. Rather, if county roads are being closed to facilitate mining, and if these roads will no longer be used, they need to be reclaimed. (PBB)

A commitment to rip all roads and surface impacted areas a minimum of two feet should be included in the plan. (DJ)

The plan states that reduction of slope of highwalls to 45 degrees of less is not possible for economic reasons.
Unless BRI can demonstrate long term stability of these highwalls, they should be completed at a slope angle of 45 degrees or less. (DJ)

110.3 Description of facilities to be left (post mining use)

Before any facilities are replaced at the site, a Division review for any addition reclamation liabilities need to be completed by the Division. (DJ)

110.5 Revegetation planting program

The reclamation treatments maps indicate the dump and pit backfill surfaces will not be ripped, but the Division expects these surfaces will be very compacted and that ripping will be needed. Please provide a commitment to rip these areas or include a statement indicating why ripping is not needed. (PBB)

One of the stipulations from the Division of Solid and Hazardous Waste on approval of the landfill is that it be seeded with ". . . grass, other shallow rooted vegetation, or other native vegetation . . .". The Division apparently has authority to approve the seed mix used, and in keeping with the intent of this approval, species like fourwing saltbush and shadscale should not be used at the landfill. The amount of grass seed used in this area should be increased to compensate for deleting the shrubs. (PBB)

The plan says soil will be applied on dump outslopes if it is available, and the reclamation treatments maps (Section 7.11.1) indicate dump outslopes will be seeded where the topsoil is applied. Section 8.1 says outslopes are reclaimed either by pushing topsoil over the edge and seeding those areas, or by direct seeding of the outslopes if adequate soil is not available. These two sections of the plan appear to conflict. The Division agrees with the rationale in Section 8.1 that says that even in fairly rocky areas, there is usually some soil or fine-grained material where some plants can grow. (PBB)

The Division suggests some minor changes to the reclamation seed mixture. Black sage is present in surrounding areas and could be added to the mix (0.10 pounds of pure live seed per acre). If it does not do well, it could be removed. The Division also suggests reducing the amount of yellow sweet clover to 0.5 pounds PLS/acre. (PBB)

It does not appear the application contains a commitment to seed at a certain time of year. It is important that seeding only be done in the fall or early winter—no later than about the middle of December. The application should include a commitment to this effect. (PBB)

The plan states that the company intends to complete is current reclamation obligations and new obligations resulting from continued operations using proven methods and techniques either from its past experience or on-going testing assessment of new and alternate methods.
Before any new or alternate reclamation methods not approved in this or previous plans are implemented, application for approval of these methods must be approved by the Division. (DJ)

The plan states that BRI will use one or more of the soil amendments mention in the plan. For surety calculation purposes, these differing amendment applications need to be included in the plan. (DJ)

R647-4-111 - Reclamation Practices

111.2 Reclamation of natural channels

The original plan showed the locations of diversion ditches and the hydrologic designs for these diversion to be capable of passing the 50 year- 24 hour rainfall event. Since most of this information was generated for the original application it does not need to be recreated but needs to be applied to the new plans and designs. This permit modification presents a new phased mining plan, diversion of surface water may change over time during the different phases as the plan is implemented. Diversion ditches should be at least capable of carrying the 50 year-24 hour event and impoundments if they are not pits should be should be capable of storing the 100 year-24 hour rainfall event. All these watershed calculations are contained in the original application but not referenced or included in this application. Plate 2, showing drainage flow lines, is confusing and would be better presented if it had specific drainage diversions and impoundment areas identified like the original application.
Please provide typical cross-sections and locations of each of these ditches and impoundments. (TM)

111.7 Highwalls stabilized at 45 degrees or less

Because pits addressed in this plan are mined in phases, unless a variance is granted to allow highwalls to remain at an overall slope angle of greater than 45 degrees, should be completed at slope angles less that 45 degrees. (DJ)

111.9 Dams & impoundments left self draining & stable

Please show the location of all impoundment areas and provide the associated hydrologic calculations that show all permanent impoundments are capable of containing the 100 year-24 hour storm event. The justifications and language contained in the plan is not inaccurate but needs the support of hydrologic watershed calculations. The original application contained watershed peak flow and volume calculations that apply to the

same watershed areas and certainly could be used to demonstrate compliance with this rule, but needs to be included in this revision. (TM)

R647-4-112 - Variance

This plan needs to request a new variance for impoundments that are not self draining.(TM)

Part of the justification for not backfilling the pits is that they impound water which is used by wildlife. Other than anecdotal observations of pronghorns and chukars using water in the pits, is there evidence this impounded water is benefiting wildlife populations in the area? Is water a limiting factor? (PBB)

Section 6.7.1 discusses approved variances which include, according to the application, tuff-covered dumps, open pit walls and floors, and waste rock dump outslopes. The Division's understanding of the variance granted for waste rock areas is that it includes those places (both outslopes and tops of the dumps) with blocky rhyolite and that the variance does not apply to all of the outslopes. The Division and the operator need to come to a mutual understanding of the existing variances, and the application may need to be altered. (PBB)

Variances as approved were granted to features which would be constructed during the completion of that MRP approval. If any of these features are modified or changed during the course of this plan, variances for these additional features must be applied for and approved for this recent plan. (DJ)

In Section 8.4, the operator requests a variance from revegetation success standards and proposes alternate standards. These include documentation of soil quality, documentation that seed has germinated in two or more growing seasons (not necessarily consecutive), and recoding the amount of precipitation. (PBB)

The rules say (R647-4-111.13):

> Revegetation shall be considered accomplished when:
> 13.11. The revegetation has achieved 70 percent of the premining vegetative ground cover. If the premining vegetative ground cover is unknown, the ground cover of an adjacent undisturbed area that is representative of the premining ground cover will be used as a standard. Also, the vegetation has survived three growing seasons following the last seeding, fertilization or irrigation, unless such practices are to continue as part of the postmining land use; or
>
> 13.12. The Division determines that the revegetation work has been satisfactorily completed within practical limits.

The Division understands the difficulty in establishing vegetation at this harsh site but feels it is inappropriate to grant a wholesale variance in anticipation of difficult reclamation conditions. If the operator tests, salvages, and reapplies soil properly; adequately prepares the seedbed; obtains good quality seed; and seeds correctly and at the right time of year, and if revegetation is still not successful, the Division has the ability to apply rule R647-4-111.13.12 quoted above. Generally, an operator needs to seed three times before the Division will apply this rule. (PBB)